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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,727	08/09/2002	Colin Robert Willis	41577/266144	5079

7590

03/21/2006

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EXAMINER

PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/018,727	<b>Applicant(s)</b> WILLIS ET AL.	
	<b>Examiner</b> Marianne L. Padgett	<b>Art Unit</b> 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/30/2005 & 2/28/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 7, 8 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-4, 7, 12, 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/2006 has been entered.

As noted in the advisory mailed 1/18/2000 the amendment removes the 112, first paragraph rejections of the 9/28/2005 final rejection.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 7, 12 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Connell et al (UK 1,037,144), in view of Timmons et al (5,876,753) or visa versa, as discussed in sections 9-10 & 5 of the actions mailed 1/12/2005 & 9/28/2005.

Applicants have amended the independent claim 1 to require "an average power of the pulsed plasma discharge is less than 0.05 W/cm<sup>3</sup>", which was previously a limitation recited in dependent claim 6, now canceled. First as previously noted, the units describing applicants' "average power" are actually

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units of power density, and while the applied references do not provide values of power density per se, Timmons et al. was previously noted to provide teachings on routine experimentation to provide an effective low power plasma in columns 7-8. Particularly see therein lines 28-45 in column 7, which discuss how the volume of the reactor chamber affects power density in plasmas of like power, stating "large reaction volume at a given applied power would also provide increase retention of monomer functional groups, as this variation in effect decreases the power density during plasma polymerization processes", thus from the teachings of Timmons et al., it is considered that it would have remained clear to one of ordinary skill in the art to employ routine experimentation to adjust one's power density for the particular reagents employed, so as to provide desired retention of monomer functional groups as taught, which from the teachings of Timmons to effect low-power plasmas, would have been expected to include optimization to relatively low powers, such as those within power densities claimed.

At the bottom of page 7 in the 12/30/2005 remarks applicants allege that Timmons et al. teach away from "low pulsed plasma discharge", however this "low" has no clear meaning & their following discussion concerning pulsed low duty cycles is irrelevant to the independent claims, as the unsupported duty cycle ranges have been deleted from the claims, so are not relevant to the newly amended average power density limitation (called average power) in the independent claim. At the top page 8, applicants discuss depositions using "pulses of extremely low mean power (0.04 W)" and refer to examples 4 & 5 on page 9, however none of the examples on pages 9 -10, i.e. examples 1-9, have any teachings of "mean power", as they all provide only a "peak power = 40 W", which even given the ON and OFF times of the plasma, does not provide sufficient information to calculate an arithmetic mean power, as peak power is the highest value reached providing no other information on instantaneous power values during the ON period, nor would such a value have any relevant meaning with respect to the present claim limitations, which relate to units of power density, which require one to know the plasma volume. The examiner notes that the claimed  $< 0.05 \text{ W/cc}$  was introduced on page 6, lines 10-12, where the "average power of the

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pulsed plasma discharge" would in context more properly read --average power density... --, however the context of the specification would imply that this is the average power over the duration of the pulses only, because that's when the discharge is taking place, but applicant's arguments concerning duty cycle, which are not relevant to any claim except 7, suggest averaging over both the pulses on-time and off time. As the examiner noted no teachings of plasma volume for the particular example of (20  $\mu$ s on)/(10,000-20000  $\mu$ s off), she sees no way to relate the claimed plasma power density values to the exemplary 40 W peak power used with these exemplary ON/OFF times, which appears to be what applicants are basing their arguments upon, although exactly how is not clear, thus these arguments are not at all convincing, in the rejection is maintained.

The specification was further review for any teachings on the criticality of the pulsed plasma parameter of  $< 0.05$  W/cc (i.e. power density), however the only place it was found to be mentioned was on page 6, lines 10-12, thus it was never particularly related specifically to any of the individual compounds, nor more than generally to the on-off times. None of the examples disclose what power densities were used to produce their results, only providing teachings comparing continuous wave plasma and pulsed plasma, where the pulsed plasma used a peak power of 40 W, with 20  $\mu$ s ON time/20 ms OFF time, which provides no determinable significance to power limitation now claimed in the independent claim. While the compositional data on the deposits comparing continuous plasma and pulsed pulsed, show significant differences therebetween, those differences are consistent with the teachings of Timmons et al. who notes that as compared to continuous plasmas, pulsed plasmas are expected to increase retention of functional groups such that one would affect spec that an increased percentage of heteroatom such as oxygen. Thus lacking a showing that this particular range of power densities as a significantly different effect in the deposition of the claimed compounds as compared to higher power densities, the examiner finds no patentable significance in this particular range, as it appears to be consistent with routine experimentation to optimize pulsed plasma parameters.

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4. As stated in section 6 of the 9/28/2005 action, it remains noted that FR 2,581,991 to Delfort et al was cited by PCT continues to provide cumulative evidence that the amine groups provided to the active epoxy functional groups on the coated surface, would have been expected to proceed in a covalent coupling reaction or derivatization at the site of the epoxy as suggested and claimed, as well as providing further evidence of the known desirability of such reaction products.

5. Claims 1-4, 7, 12 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timmons et al (753), in view of Kolluri et al (5,723,219), discussed above in sections 10 & 12-13 of the action mailed 1/12/05. Arguments as presented above in section 3, also apply to this rejection.

6. Applicant's arguments filed 12/30/2005 & 2/28/2006, and discussed above have been fully considered but they are not persuasive.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software 3/18/2006



MARIANNE PADGETT  
PRIMARY EXAMINER